Docspot: seamless appointment booking for health

Introduction

Project Title: Docspot: seamless appointment booking for health

Team Members and Their Roles:

Member-1: - G Eswar Sai Sandeep - [Backend Development & Project Implementation & Execution]

Member-2: - B Devi – [Frontend Development & Database Development]

Member-3: - K Jaya Shankar Sai– [Project Setup and Configuration & Frontend Development]

Member-4: - K Sankar – [Backend Development & Project Setup and Configuration]

Project Overview

Purpose

DocSpot is a MERN-based appointment booking application designed to connect users with multiple healthcare providers. It allows patients to explore available doctors and clinics, book appointments, and track them conveniently. For healthcare providers, it offers a platform to manage schedules and process appointments, while administrators oversee operations.

Features

->Features multiple healthcare provider listings with a wide range of specialties and services.

->Allows users to enter appointment and payment details for their bookings.

->Ensures a safe and streamlined transaction experience for patients.

->Provides confirmation and detailed information after an appointment is booked.

->Enables administrators to manage providers and appointments efficiently.

Application Flow

User Flow

-Register for an account and log in.

-Browse doctors and add appointments to the booking cart.

-Enter appointment and payment details to complete the booking.

-Track appointment history through the profile section.

HealthCare Provider Flow

-Authenticate and request admin approval.

-List, update, and manage appointment slots and services.

Admin Flow

1. Log in to the admin dashboard.
2. Manage users, healthcare providers, appointments, and services

Architecture

Frontend

->Built with React.js, the frontend delivers a responsive interface for users and healthcare providers.

->Pages include doctor listings, booking cart, checkout, appointment history, and dashboards.

Backend

Developed using Node.js and Express.js, the backend handles core logic including user authentication, appointment handling, booking processing, and database communication.

Database

Uses MongoDB for storing all structured data.

Key Schemas:

user Schema: User details (username, email, password).

Provider Schema: Healthcare provider information (name, specialty, description).

Appointments Schema: Appointment records (user Id, provider Id, date, time).

Cart Schema: Temporary booking cart data linked to a user.

Admin Schema: Admin data (categories, promoted providers).

Healthcare Provider Schema: Healthcare provider data including profile and service catalogue.

Setup Instructions

Prerequisites

- Node.js (v14+)

- MongoDB (Compass or Atlas)

- npm or yarn

Installation

- Create project folder and initialize package. Json.
- Install dependencies: npm install express mongoose dotenv cors body-parser or yarn add express mongoose dotenv cors body-parser.
- Create index.js and set up Express server.
- Configure MongoDB and environment variables in a .env file (e.g., MONGO_URI=your_mongodb_url).

Folder Structure

Client

- src/components: React components for UI
- src/pages: Individual pages (Home, Booking Cart, Checkout)
- src/context: State management using Context API

Server

- server/index: Route handlers for users, providers,appointments, admin.
- server/Schema: Mongoose schemas and models
- server/index: Logic for handling API calls
- server/: Authentication and error handling logic

Running the Application

The project uses concurrently to streamline development by running both frontend and backend servers in parallel from the root directory.

To Start the Full Stack Application

- Run: npm start
  - This command triggers scripts defined in the root package. Json, simultaneously launching:
    - **Frontend**: React app located in /client
    - **Backend**: Express server located in /server
  - No need to navigate into individual folders manually—everything is wired up for convenience and efficiency.

API Documentation

Method	Endpoint	Description
POST	/api/register	Register a new user with email and password. performs validation and hashes passwords using p byscript.
POST	/api/login	h Authenticates a user and returns a JWT token.
GET	/api/products	i Retrieves a list of available products. Supports r filtering and pagination (optional).
POST	/api/orders	Submits a new order. Requires authentication.
GET	/api/orders/:id	. Fetches details for a specific order by ID. Secured e accessible by order owner or admin.

Authentication

User authentication is managed via **JSON Web Tokens (JWT)**. The backend issues a token upon successful login, which must be included in the Authorization header of protected requests.

Access Control:

➔ Regular Users: Can view healthcare providers, book appointments, and view their own appointments.
➔ Admins: Have extended privileges like viewing all appointments and managing providers and services.

User Interface

The frontend is built with React, focusing on simplicity and responsiveness. Key features include:

- **Navigation**: Seamless transitions between views using React Router.

- **Pages**:
    - Home
    - Healthcare Provider Listing
    - Service Items
    - Booking Cart
    - Checkout
    - Admin/User Dashboards

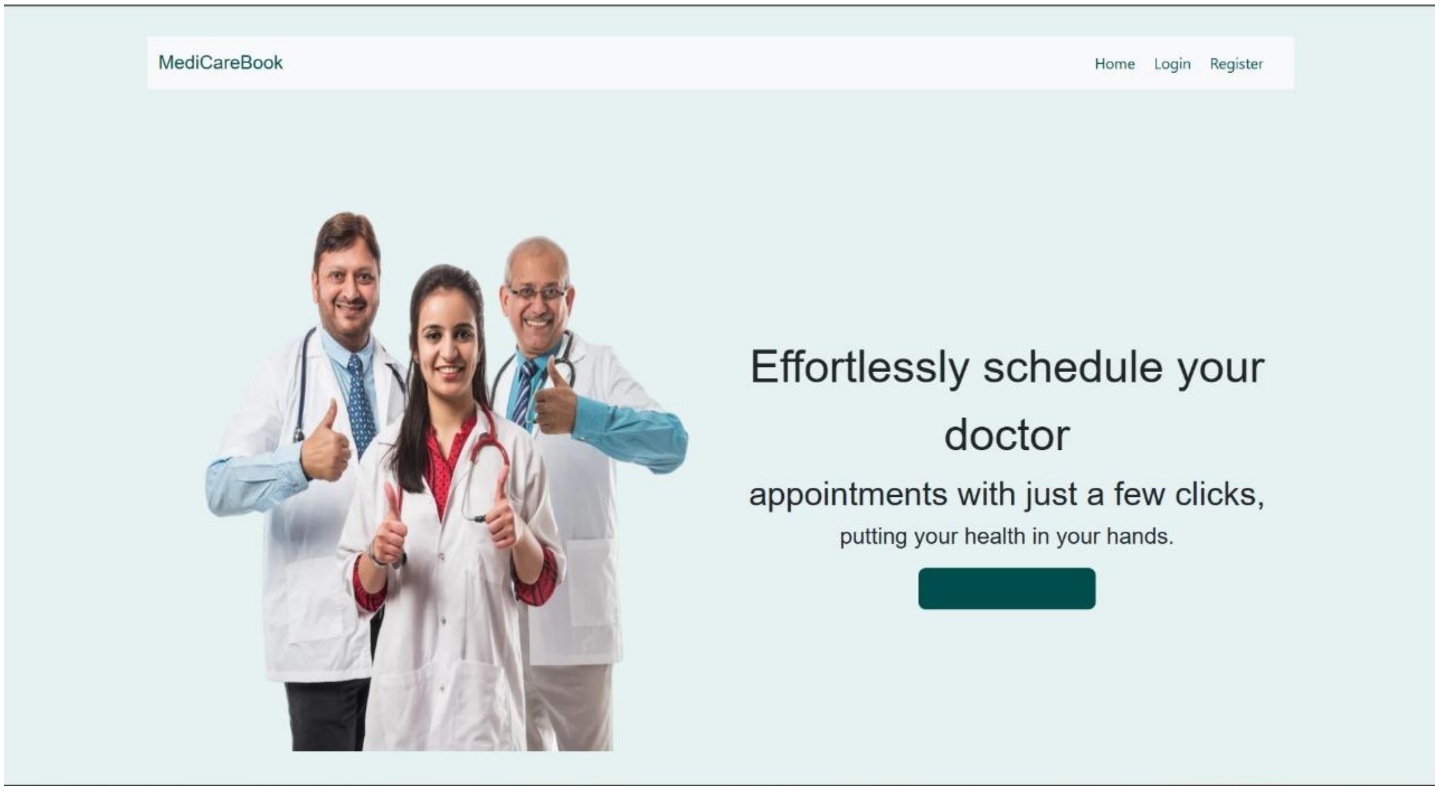
The layout is responsive and styled with Bootstrap, ensuring an optimal experience across devices.

Testing

- **Manual Testing**: Conducted during development by interacting with the frontend and verifying backend responses.
- **Postman**: Used to test and document APIs, verify headers, request bodies, and token validity.
- **Future Enhancement**: Add unit and integration tests using frameworks like Jest or Mocha.

Screenshots or Demo

- **Landing page**

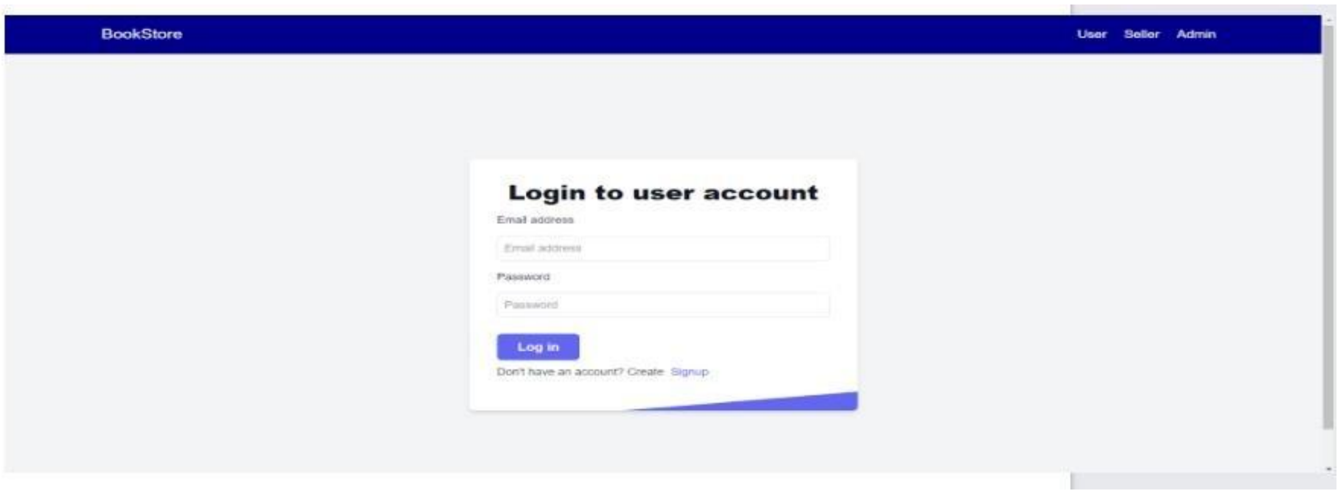


Effortlessly schedule your doctor

appointments with just a few clicks,

putting your health in your hands.

- **Login Page**



Login to user account

Email address

Email address

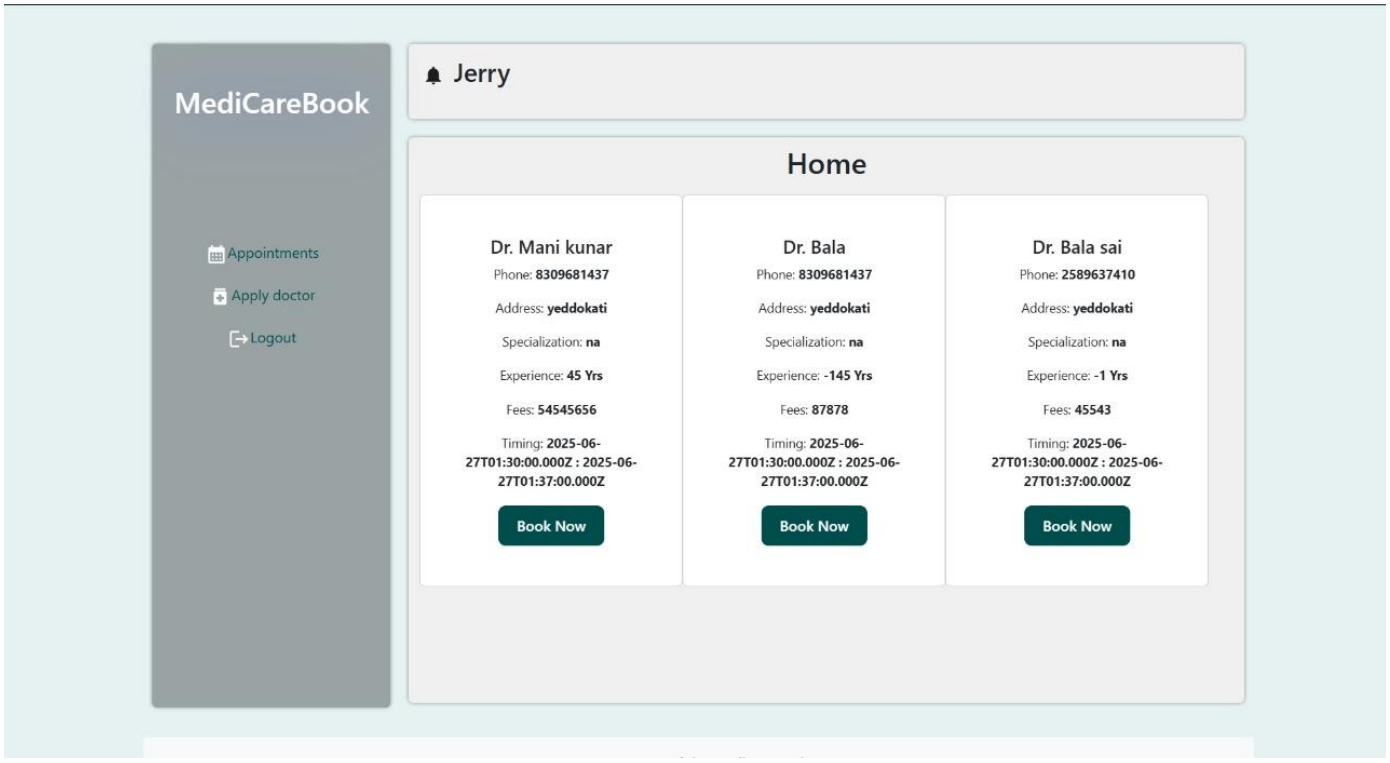
Password

Password

Log in

Don't have an account? Create Signup

Home Page



MediCareBook

Jerry

Home

Appointments

Apply doctor

Logout

Dr. Mani kunar

Phone: **8309681437**

Address: **yeddokati**

Specialization: **na**

Experience: **45 Yrs**

Fees: **54545656**

Timing: **2025-06-27T01:30:00.000Z : 2025-06-27T01:37:00.000Z**

Book Now

Dr. Bala

Phone: **8309681437**

Address: **yeddokati**

Specialization: **na**

Experience: **-145 Yrs**

Fees: **87878**

Timing: **2025-06-27T01:30:00.000Z : 2025-06-27T01:37:00.000Z**

Book Now

Dr. Bala sai

Phone: **2589637410**

Address: **yeddokati**

Specialization: **na**

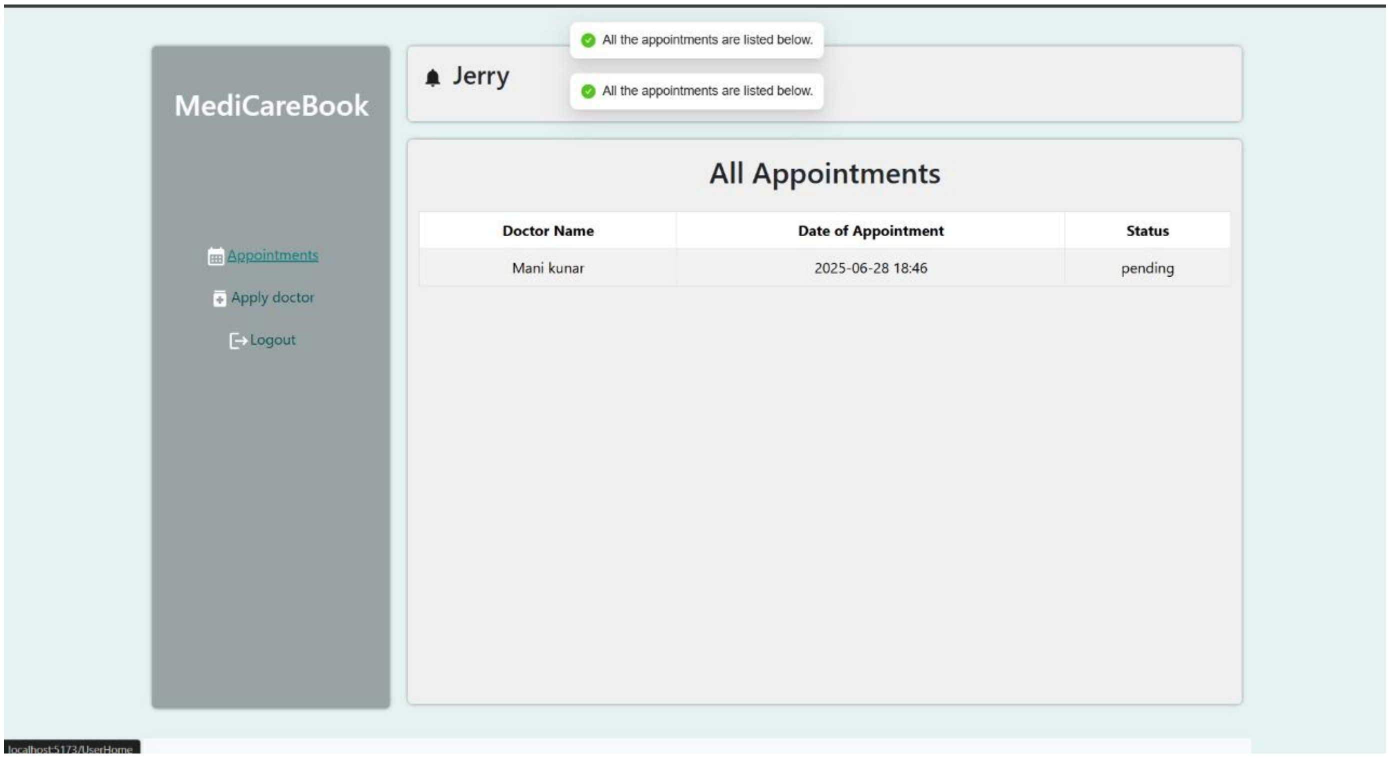
Experience: **-1 Yrs**

Fees: **45543**

Timing: **2025-06-27T01:30:00.000Z : 2025-06-27T01:37:00.000Z**

Book Now

- **Appointment Page**



MediCareBook

Jerry

All the appointments are listed below.

All the appointments are listed below.

Appointments

Apply doctor

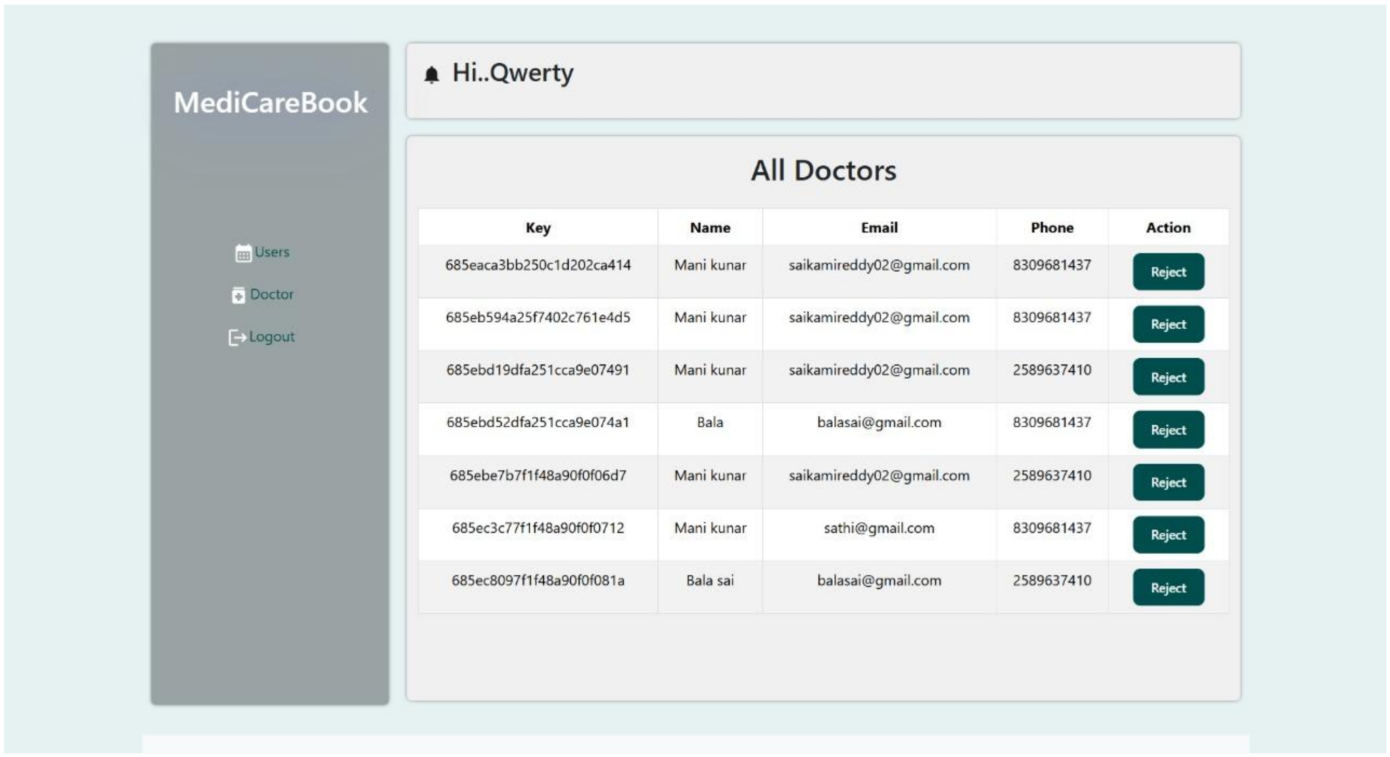
Logout

All Appointments

Doctor Name	Date of Appointment	Status
Mani kunar	2025-06-28 18:46	pending

localhost:5173/UserHome

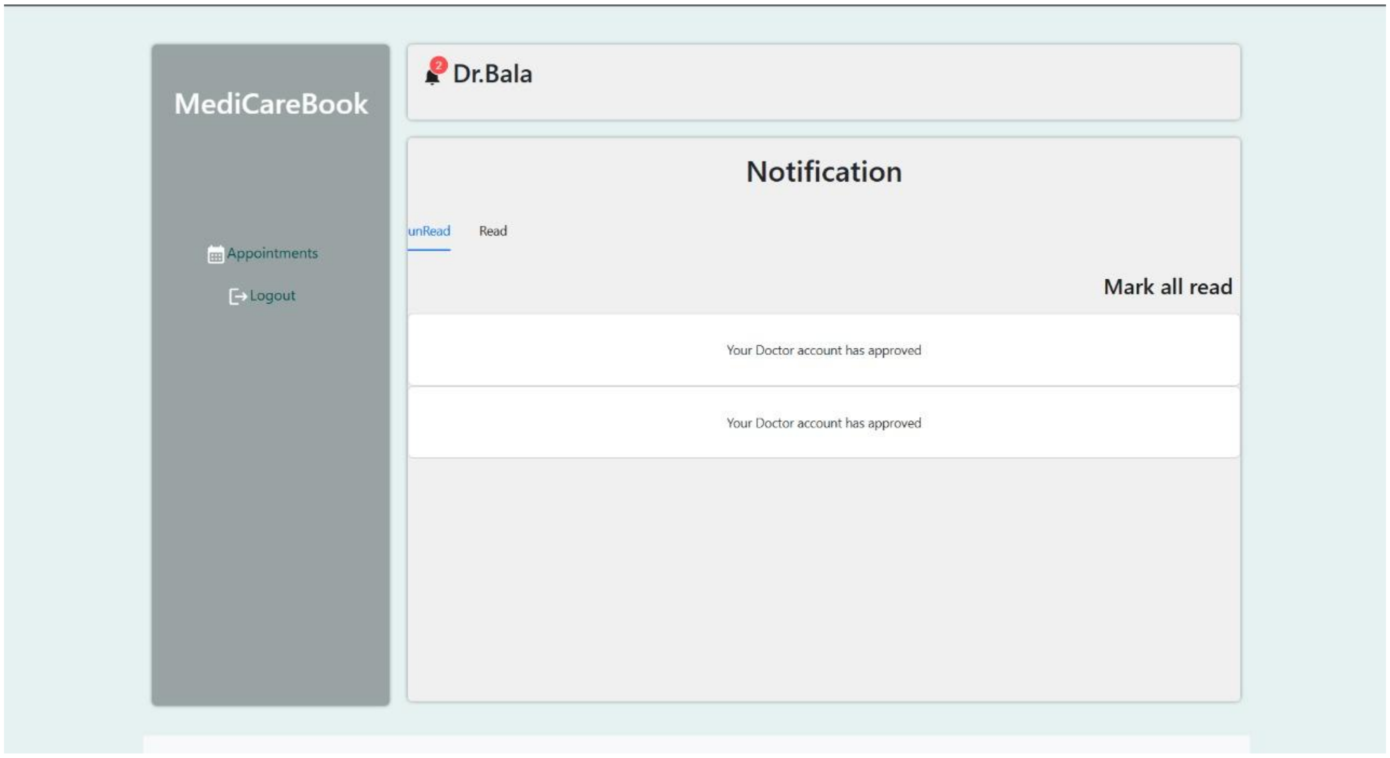
Doctors Page



All Doctors

Key	Name	Email	Phone	Action
685eaca3bb250c1d202ca414	Mani kunar	saikamireddy02@gmail.com	8309681437	Reject
685eb594a25f7402c761e4d5	Mani kunar	saikamireddy02@gmail.com	8309681437	Reject
685ebd19dfa251cca9e07491	Mani kunar	saikamireddy02@gmail.com	2589637410	Reject
685ebd52dfa251cca9e074a1	Bala	balasai@gmail.com	8309681437	Reject
685ebe7b7f1f48a90f0f06d7	Mani kunar	saikamireddy02@gmail.com	2589637410	Reject
685ec3c77f1f48a90f0f0712	Mani kunar	sathi@gmail.com	8309681437	Reject
685ec8097f1f48a90f0f081a	Bala sai	balasai@gmail.com	2589637410	Reject

- **Notification Page**



MediCareBook

Appointments

Logout

2 Dr.Bala

Notification

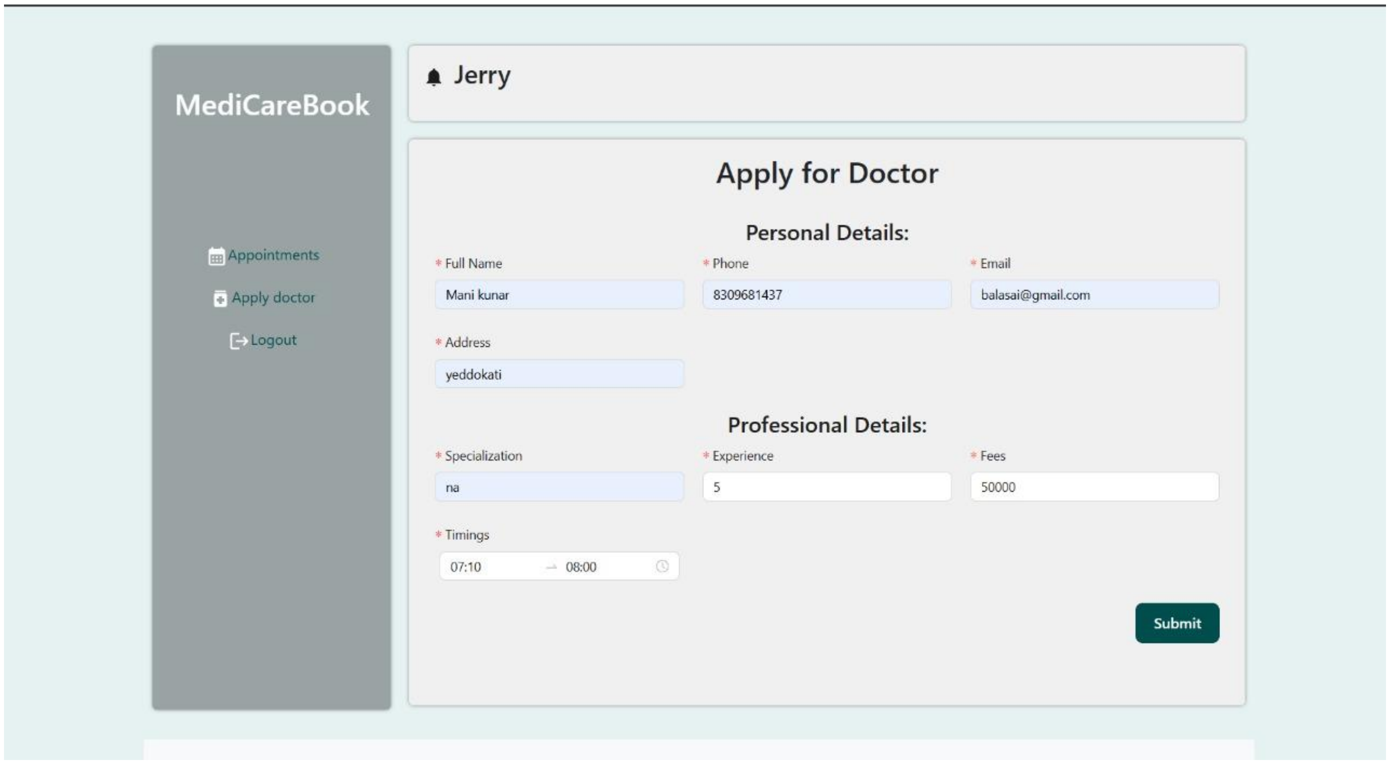
unRead Read

Mark all read

Your Doctor account has approved

Your Doctor account has approved

Apply Page



MediCareBook

Appointments

Apply doctor

Logout

Jerry

Apply for Doctor

Personal Details:

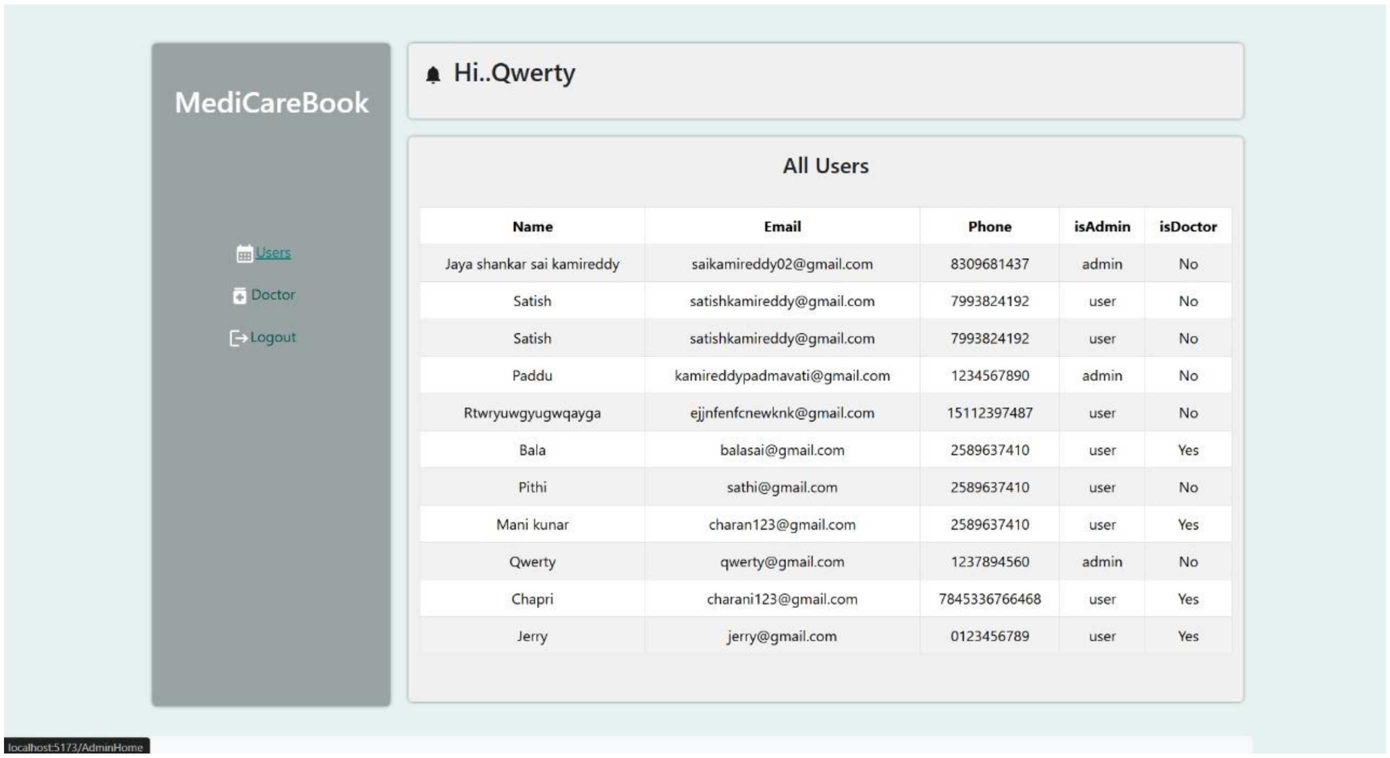
* Full Name: Mani kunar
* Phone: 8309681437
* Email: balasai@gmail.com
* Address: yeddokati

Professional Details:

* Specialization: na
* Experience: 5
* Fees: 50000
* Timings: 07:10 → 08:00

Submit

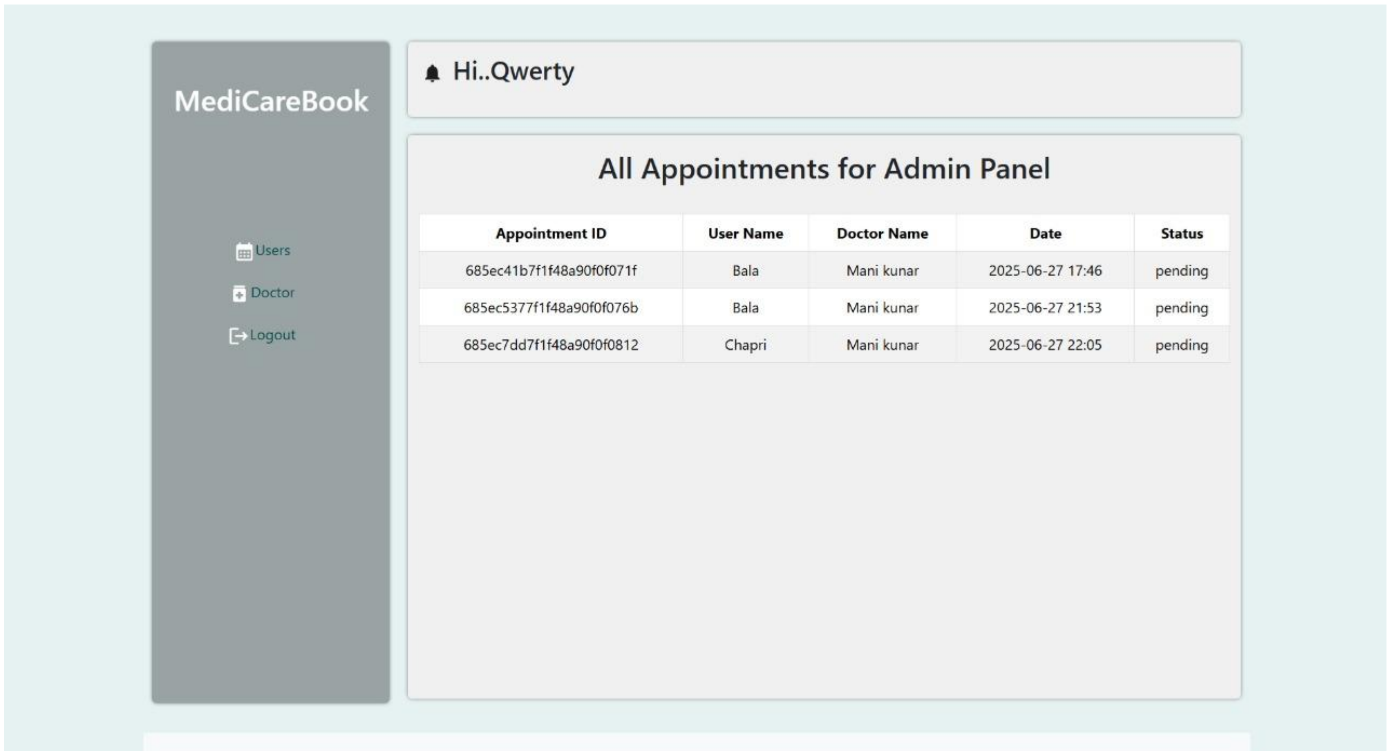
- **User Page**



Hi..Qwerty

All Users

Name	Email	Phone	isAdmin	isDoctor
Jaya shankar sai kamireddy	saikamireddy02@gmail.com	8309681437	admin	No
Satish	satishkamireddy@gmail.com	7993824192	user	No
Satish	satishkamireddy@gmail.com	7993824192	user	No
Paddu	kamireddypadmavati@gmail.com	1234567890	admin	No
Rtwryuwgyugwqayga	ejjnfenfcnewknk@gmail.com	15112397487	user	No
Bala	balasai@gmail.com	2589637410	user	Yes
Pithi	sathi@gmail.com	2589637410	user	No
Mani kunar	charan123@gmail.com	2589637410	user	Yes
Qwerty	qwerty@gmail.com	1237894560	admin	No
Chapri	charani123@gmail.com	7845336766468	user	Yes
Jerry	jerry@gmail.com	0123456789	user	Yes



Hi..Qwerty

All Appointments for Admin Panel

Appointment ID	User Name	Doctor Name	Date	Status
685ec41b7f1f48a90f0f071f	Bala	Mani kunar	2025-06-27 17:46	pending
685ec5377f1f48a90f0f076b	Bala	Mani kunar	2025-06-27 21:53	pending
685ec7dd7f1f48a90f0f0812	Chapri	Mani kunar	2025-06-27 22:05	pending

Known Issues

- Lack of automated testing (unit/integration).
- No continuous integration or deployment pipeline in place.

- Error handling and form validation can be improved further.
- Provider and appointment data are not paginated.

Future Enhancements

* Integrate **payment gateway** (e.g., Stripe, Razor pays) for secure transactions.
* Implement real-time appointment status updates using WebSockets (e.g., Socket.IO).
* Add push notifications for users on appointment activity.
* Set up CI/CD pipeline for automated deployment and testing.
* Improve admin panel with analytics and provider insights.
* Add user profile management (update info, view past appointments).